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I. F. WALLACE & W. L. KELLOGG.

EXHAUST MECHANISM FOR LOCOMOTIVES.

APPLICATION FILED JULY 12, 1900.

NO MODEL.

Fig. 2

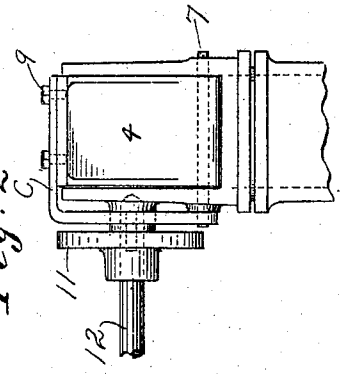

Fig. 3

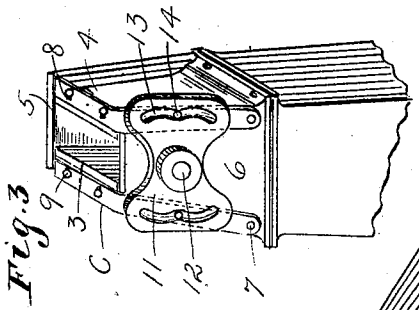

Fig. 1

Witnesses.
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THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

IRA F. WALLACE AND WILLIAM L. KELLOGG, OF MINNEAPOLIS, MINNESOTA.

EXHAUST MECHANISM FOR LOCOMOTIVES.

SPECIFICATION forming part of Letters Patent No. 718,681, dated January 20, 1903.

Application filed July 12, 1900. Serial No. 23,337. (No model.)

To all whom it may concern:

Be it known that we, IRA F. WALLACE and WILLIAM L. KELLOGG, citizens of the United States, residing at Minneapolis, in the county of Hennepin and State of Minnesota, have invented certain new and useful Improvements in Exhaust Mechanism for Locomotives, of which the following is a specification.

Our invention relates to improvements in variable-exhaust nozzles for locomotives; and it consists of the improved features of construction and combination hereinafter specifically described and claimed.

In the accompanying drawings, forming part of this specification, Figure 1 is a side elevation of the front part of a locomotive provided with our improvements, parts being broken away. Figs. 2 and 3 are side and end elevations of the exhaust mechanism.

The locomotive A is provided in the front part of its boiler with the nozzle B, into which exhaust the cylinders 2 of the locomotive. The nozzle B is provided on opposite sides with doors 3 and 4, fitting between the side walls 5 and 6 and pivotally supported by the rods 7.

C represents a pair of straps, each having pivotal connection 8 upon the side walls 5, the upper end of the strap being inwardly turned over the top of the adjacent door and being connected therewith by bolts 9 passing through transverse slots 8 in the strap. In order to actuate said doors, we provide the cam 11, having central pivotal support 12 upon the side wall 5 of the nozzle, said cam being formed with curved slots 13 to receive studs 14, which project outward from the straps. Secured to the center of the cam is the arm 15, having adjustable connection with the rod 16, which is connected at its opposite end with the reverse-shaft 17 of the locomotive. By means of the slot-and-bolt connection between the doors and the straps C the doors can be adjusted toward and from each other, and by means of the adjustable connection between the arm 15 and the rod 16 and the nut 18 the throw of the cam as actuated from the reverse-lever is regulated. The reverse-shaft is actuated from the engine in the usual way. When the arm 15 is in mid-position, the doors will be nearest to each other, and when the arm is in either extreme position the doors are forced apart.

The operation is as follows: The doors are moved simultaneously toward or from each other, according to the oscillation of the reversing-shaft, thus increasing or diminishing the opening for the free exit of the exhaust-steam. When the valves are open to the greatest extent, the movement of the reversing-lever will cause the parts to assume the position shown in Fig. 1, in which the doors are farthest apart, allowing freest exhaust of the exhaust-steam. When the reversing-lever is moved in the opposite direction, the doors are thrown toward each other.

We claim—

1. In combination, an exhaust-nozzle provided with fixed unconnected parallel walls constituting two sides of the nozzle, parallel doors having hinge-support between the outer edges of said walls and constituting the remaining walls whereby the turning of said doors upon their supports will shear the oil and dirt off the fixed walls.

2. In combination an exhaust-nozzle provided with fixed side walls, parallel doors having hinge-support between said walls, a cam arranged outside of one of said walls, and straps connected with said doors and having operative connection with said cam.

3. In combination with an exhaust-nozzle provided with fixed unconnected parallel walls constituting two sides of the nozzle, parallel doors having hinge-support between said walls and constituting the remaining walls of the nozzle, means for securing said doors in adjusted position, and means for swinging said doors upon their supports whereby oil and dirt will be sheared off the fixed walls by said doors.

4. The combination with the exhaust-nozzle of a locomotive, and doors arranged in opposite sides thereof, with means for actuating said doors consisting of straps connected therewith, a cam arranged intermediate of said straps and operatively connected therewith, and a connection between said cam and the operating parts of the locomotive.

5. The combination with the exhaust-nozzle of a locomotive, of doors hinged upon the opposite sides thereof, straps adjustably con-

nected with said doors, and having pivotal connection with the nozzle, a cam arranged intermediate of said straps and connected therewith, and a connection between said cam and the reversing-shaft of the locomotive.

6. In an exhaust mechanism for locomotives, the exhaust-nozzle B, doors hinged at their lower edges in the opposite sides of said nozzle, straps adjustably connected with the free edges of said doors and having pivotal connection with the sides of the nozzle, a cam pivoted intermediate of said straps and having slot-and-pin connection therewith, an arm carried by said cam, and a connection between said arm and the reversing-shaft of the locomotive.

In testimony whereof we affix our signatures in presence of two witnesses.

IRA F. WALLACE.
WILLIAM L. KELLOGG.

Witnesses:
ELGIE H. EVANS,
H. S. JOHNSON.